

COMMUNICATION AND NETWORKING RISER ECR FORM

Date: September 12, 2000

ECR# (assigned internally): #012

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Title of the Change: USB_OC# pin voltage definitions

Specification Title and Version: CNR Specification, Version 1.0

Reason for Change:

There are a few possible implementations for USB on the CNR which involves the use of the USB_OC# pin:

1) USB is routed from the motherboard through the connector to a USB port (typically, a connector) on the CNR. In this case, USB_OC# is connected to the USB power to the port to monitor the supply level. Excessive current draw from USB power (5V +/- 5%) will result in an assertion of USB_OC# to the motherboard.

2) USB is routed to a hub to increase the number of available ports. In this case, USB_OC# could be connected to the over current pin on a USB hub as means of disabling the hub if a USB device attached to the hub draws excessive current. Maximum input levels of the over current pins of hubs are typically of the order of 3.6V. Since the over current signal on the CNR is most likely tied to either the 5V supply or the 5V dual supply to the CNR, a voltage translation must be implemented on the motherboard to avoid damage to the motherboard USB controller. This implementation should satisfy both cases described above.

Description of Change:

Modify Table 11 to add output voltage level requirements. The text shown in red indicates the changes to be made.

The high-level voltage level for a logical '1' should be defined as 5V+/-5% for the USB_OC# pin.

Signal Name	Min.	Max.	Units	Comments
CDC_DN_ENAB#				
Pull-up resistance	950	1050	ohms	Value of resistance on CNR
Pull-down resistance	9500	10500	ohms	Value of resistance on Motherboard
V _{IL}		0.3xV _{DD}	Volts	<i>V_{DD} refers to the digital supply operating the circuitry on the CNR board, which interfaces to the specified signal (i.e. 3.3VD).</i>
V _{IH}	0.5xV _{DD}		Volts	
USB+, USB-, USB_OC#	--	--	--	Refer to the current version or release of the Universal Serial Bus Specification (Revision 1.1 or later).
USB_OC#				
V _{OL}		1.0	Volts	Voltages less than V _{OL} indicate an over current condition ^{1,2}
V _{OH}	4.5		Volts	Voltages greater than V _{OH} indicate a normal operating condition ^{1,2}
I _{OL}		0	Amps	
I _{OH}	0.001		Amps	
AC97_BITCLK, AC97_SYNC, AC97_SDATA_OUT, AC97_SDATA_IN0, AC97_SDATA_IN1, AC97_RESET#	--	--	--	Refer to the current version or release of the appropriate Audio Codec '97 Component Specification (Revision 2.1 or later).

The following footnotes must be added at the bottom of same page as the changes to Table 11 occur::

1 – It is the responsibility of the CNR designer to properly implement circuitry on the CNR board which absolutely indicates an over current condition to the motherboard through the use of the USB_OC# signal. Additional information on USB over current can be found in Section 7.2.1.2.1 of either the USB Revision 1.1 or USB Revision 2.0 Specifications.

2 – It is the responsibility of the motherboard designer to properly translate the USB_OC# signal, from the CNR, to voltage and drive strength levels that are compatible with the motherboard USB controller.